

F A C S I M I L E			
Date:	April 30, 2002	From:	John A. Sopp
To:	Examiner Souw Group Art Unit 2881 USPTO	MILLEN, WHITE, ZELANO & BRANIGAN, P.C. Arlington Courthouse Plaza I 2200 Clarendon Boulevard, Suite 1400 Arlington, VA 22201 (U.S.A.) Facsimile: 703-243-6410	
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Telephone No.:		Writer's Internet Address:	sopp@mwzb.com
Re:	U.S. Patent Application No. 10/031,081 Our Ref (Attny Docket): TAKIT-163		
Total No. of Pages: 3; if you do not receive all pages, please call 703-243-6333			

Dear Mr. Souw:

Pursuant to our recent phone conversation, attached is a copy of the questions I sent to the client and their response. Hopefully, this will be helpful to further understanding of the invention. I am also awaiting copies of the two mentioned articles and will forward them as soon as they are received.

Very truly yours,

John A. Sopp

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# FACSIMILE

Date: March 24, 2003

To: Takira, Shimoda & Associates  
7 Fl. Okano Bldg.  
41-12, Kabukicho 2-Chome  
Shinjuku-ku, Tokyo 160-0021  
JAPAN

Facsimile No.: 080

Telephone No.:

From: **JOHN A. SOPP**

**MILLEN, WHITE, ZELANO & BRANIGAN, P.C.**  
Arlington Courthouse Plaza I  
2200 Clarendon Blvd., Suite 1400  
Arlington, VA 22201 (U.S.A.)  
(Fax: 703-243-6410)

### Winter's Direct Dial:

Writer's Internet Address: sopp(a)mwzb.com

Re: U.S. Patent Application No. 10/031,081  
METHOD OF DETERMINING STRUCTURE OF SOFT MATERIAL  
Your Ref: F01-247US  
Our Ref: TAKIT-163

**Total No. of Pages: 1; if you do not receive all pages, please call (703) 243-6333**

**Dear Colleagues:**

The examiner contacted us with some questions for which we require technical input from the client.

(1) What feature of the invention makes it possible to determine from the weak-scattering image obtained from the soft material that a plurality of crystallographically significant directions were obtained and what they are without making the type of trial and error process of the Direct Method?

(2) What unique feature of the invention makes it possible to obtain the phases directly?

(3) See page 8, lines 13-16, of the original specification; what is meant by the statement that the diffraction patterns of low spatial resolution are "with phases" and those of high spatial resolution "without phases." Should the 0.3 and 0.1 mm values be in term of  $\text{mm}^{-1}$ ?

Best regards,

John A. Supp

JAS/slm

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**John Sopp**

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From: takipat@yahoo.co.jp  
Sent: Wednesday, April 16, 2003 12:06 AM  
To: John Sopp  
Subject: Re F01-247US (TAKIT-163), answer for your Facsimile

Dear Mr. A Sopp:

Thank you for your facsimile letter of March 24, 2003. The inventor's answer for examiner's questions is as follows.

"1) Using the method we have developed, we could solve uniquely for an example three-dimensional(3d-) structure of silica mesoporous crystal of MCM-48. The structural solution is that amorphous silica wall with thickness of about 12 Angstrom follows exactly 3d-periodic minimal surface known as a gyroid surface in Mathematic, and therefore MCM-48 contains independent and interwoven 3d-networks of mesoporous channels. We can produce 3d-networks of carbon or Pt networks in the channels. We can of course solve the 3d-networks uniquely by the method we developed. In diffraction experiment, we can not find any differences between template silica mesoporous MCM-48 and the carbon or Pt 3d-networks, which is well known as The Babine's Principle, because the differences lie only in phases in crystal structure factors. The structural solutions of MCM-48 and the 3d-networks are two of thousands of possible solutions, which will be obtained only by diffraction information.

By this example, the value of our development is unique and powerful

You can find more in my following papers.

(1) Structural Study of Mesoporous MCM-48 and Carbon Networks Synthesized in

the Spaces of MCM-48 by Electron Crystallography, M.

Kaneda, T Tsubakiyama, A Carlsson, Y. Sakamoto, T.

Ohsuna, O. Terasaki, S H. Joo and R. Ryoo

J. Phys. Chem. B106 (2002), 1256-1266.

(2) EM study of novel Pt-nanowires synthesized in the spaces of silica mesoporous materials,

O. Terasaki, Z. Liu, T. Ohsuna, H.J. Shin & R. Ryoo,

Microsc. Microanal., 8 (2002), 35-39.

2) "0.3 and 0.1 mm" should be read as "0.3 and 0.1 nm-1" wherein "nm" is nanometer."

Is this sufficient information for you?

If you need further information, let us know it concretely

Best Regards

Seiki TAKITA